



**Remediation Weekly Activity Summary Report  
Ameren Columbia MGP - Remedial Action**

**Project Week No.:** Fifteen  
**Period:** 4/21 - 4/25/2014  
**Completed By:** Dave Pluhar  
**PSC Project Number:** 624-1302-0002

**General Field Activities Completed: Week Ending April 25**

EOI completed the preparation of the trenches and reinforcing steel for the temporary structure. The concrete for the west structure footing was poured on April 23rd, and the concrete for the east footing was poured on April 25. The third batch of treated wastewater was discharged on April 24th. PSC met with the City of Columbia Engineering Department to clarify requirements for the testing of the temporary structure anchors, and the inspection and reporting requirements for the structure. The electric conduit for the structure was installed below ground and backfilled from the east end of the Storage Building to the planned connection location for the structure service panel. Additional materials for the temporary structure were delivered to the Site. The repairs to the air handler plenum screens was completed.

**General Field Activities Planned: Week Ending May 2**

The anchors for the temporary structure will be installed in the east and west footings. The air handlers for the temporary structure will be delivered to the Site on April 28th and 29th. Treatment of stored wastewater will continue; treated wastewater will be discharged directly after treatment to the onsite sanitary sewer, PSC will perform weekly sampling of the treated wastewater outlet - this procedure will be used for the balance of the project. The Mahaffey Structures field crew is expected to arrive late in the week to begin the assembly of the temporary structure.

**Air Monitoring Summary: Week Ending April 25**

Remediation phase real-time and time-averaged ambient air monitoring activities continued through April 24, 2014 by Burns & McDonnell Engineering Company (Burns & McDonnell). Remediation phase ambient air monitoring will resume for the completion of Phase 2 Remediation following In-Tent Remediation activities. Remediation phase real-time ambient air monitoring activities continued through Week 15 by Burns & McDonnell Engineering Company (Burns & McDonnell) hourly with a PID, GC, and dust Monitor. No exceedances of the real-time action levels were recorded. Real-time dust concentrations for Week 15 were below action levels at the perimeter of the property. No odors were observed intermittently at the perimeter of the site during Week 15

**Weekly Project Meeting Summary: April 23, 2014**

EOI Safety Update: No work problems or issues have arisen in the past week relative to safe work practices. EOI has fire extinguishers onsite for use in the temporary structure and for each piece of yellow iron equipment to be used in the structure. The site crew has performed a severe weather preparedness discussion. The Columbia Fire Department will desire to provide their shift crews with an orientation inside the structure as the work begins; the scheduling of these orientation sessions will be managed by PSC. A discussion of respiratory protection for work inside the structure was conducted; EOI has power assisted air purifying respirators onsite for the advent that they become necessary. The Gallup truck drivers are completing fit testing for respirators. The EOI benzene action level in the structure is 50 ppm. PSC Update: The City of Columbia Building Inspection Department has requested additional requirements on the structure eave side footings. Pull tests on the epoxied anchors will be needed, and an inspection report must be submitted by a structural engineer certifying that the structure has been assembled according to the manufacturer's specifications. PSC will locate a testing firm for the anchor pull tests and will meet with the city to establish the specific requirements for the inspection report. PSC will also obtain a determination from the city concerning accepted materials for the site surface completion for areas disturbed during the remediation. Burns & McDonnell was asked to consider providing the structure inspection report. EOI Work Update: The concrete pour on the west structure footing was completed this morning (April 23). The east footing pour will be completed this week also. The air handlers will be delivered next Monday, April 28. PSC has scheduled Crockett Engineering to survey and mark the corners of the structure on the footings and Crockett will also collect elevation data for the new storm water culvert top, the storm water inlet structures, the Junction Box top and the tops of the connecting collars. PSC will have KEG prepare a site surface grading plan to accommodate the new culvert.



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Material Log

Material Type:		Actual Quantities					Project Estimates	
	Prior Total:	This Period:	Total To Date:	Phase One	Phase Two	Phase Three	Original:	Revised:
<b>Solid Waste Material:</b>								
Soil Waste to Allied Waste, Jefferson City, MO (tons)	17623.04	231.72	17854.76	12155.43	5699.33		30000.00	---
C & D Waste to Allied Waste, Jefferson City, MO (tons)	725.30	0.00	725.30	169.38	555.92		2500.00	---
MGP Remediation Waste to PDC (tons)	0.00	0.00	0.00	0.00	0.00		1000.00	---
Total All Disposal (tons)	18348.34	231.72	18580.06	18580.06	6255.25		33500.00	0.00
<b>Clean Material:</b>								
Soil Backfill (tons)	0.00	0.00	0.00	0.00	0.00		---	---
1/4-inch Stone (tons)	0.00	0.00	0.00	0.00	0.00		---	---
Sand (tons)	0.00	0.00	0.00	0.00	0.00		---	---
Rip-Rap (tons)	1932.98	0.00	1932.98	1172.64	760.34		---	---
Type 1 Aggregate (tons)	15475.99	0.00	15475.99	11383.23	4092.76		---	---
Type 5 Aggregate (tons)	0.00	0.00	0.00	0.00	0.00		---	---
One-inch Clean Stone	161.14	0.00	161.14	0.00	161.14		---	---
	0.00	0.00	0.00				---	---
	0.00	0.00	0.00				---	---
	0.00	0.00	0.00				---	---
	0.00	0.00	0.00				---	---
<b>Treated Wastewater:</b>								
Discharged to Columbia Regional WWTP	35600.00	0.00	35600.00				---	---
Disposed (other)	0.00	0.00	0.00				---	---
<b>Trucks Transporting:</b>								
	Monday	Tuesday	Wed	Thursday	Friday	Comments		
Disposal	1	1	1	0	0			
Backfill	0	0	0	0	0			



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**Sample Collection Summary:****Soil Samples:****Actual Quantities****Project Estimates**

Prior Total:	This Period:	Total To Date:	Original:	Revised:
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VOCs (5035/8260)	118	10	128	180	---
SVOCs (8270)	118	10	128	180	---
Metals (arsenic, lead, selenium)(6010)	118	10	128	180	---
Cyanide, total/amenable (9012)	118	10	128	180	---
Per-cent moisture (D-2974)	118	10	128	180	---
pH (9045)	118	10	128	180	---
TPH GRO (8260)	118	10	128	180	---
TPH DRO (8270)	118	10	128	180	---
Reactice Cyanide	0	0	0	10	---
Reactive Sulfide	0	0	0	10	---
TCLP Benzene	0	0	0	10	---
TCLP RCRA Metals	0	0	0	10	---

**Wastewater Samples:**

Ammonia as Nitrogen (EPA 350.1)	3	0	3	25	---
Total arsenic (EPA 200.8)	3	0	3	25	---
Total barium (EPA 200.8)	3	0	3	25	---
Benzene (EPA 624)	3	0	3	25	---
BOD5 (5210)	3	0	3	25	---
Total boron (EPA 200.7)	3	0	3	25	---
Total cadmium (EPA 200.8)	3	0	3	25	---
Total hexavalent chromium (EPA 218.6)	3	0	3	25	---
Total chromium (EPA 200.8)	3	0	3	25	---
Total copper (EPA 200.8)	3	0	3	25	---
Cyanide (SM4500 CN-1)	3	0	3	25	---
Total iron (EPA 200.9)	3	0	3	25	---
Total lead (EPA 200.8)	3	0	3	25	---
Total mercury (EPA 200.8)	3	0	3	25	---
Total nickel (EPA 200.8)	3	0	3	25	---
Oil & Grease (1664)	3	0	3	25	---
pH (4500-HB)	3	0	3	25	---
Phenols (420.2)	3	0	3	25	---
Total silver (EPA 200.8)	3	0	3	25	---
Total Suspended Solids ((2540-D)	3	0	3	25	---
Total toxic organics (EPA 624 & 625)	3	0	3	25	---
Total zinc (EPA 200.8)	3	0	3	25	---



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		Projected Dates		Actual Dates	
General Site Set-up		Start	Complete	Start	Complete
	Field Offices Established - 15 days	12/9/2013	1/10/2014	1/7/2014	1/13/2014
	Perimeter Fence & Gates Revised - 3 days	12/9/2013	12/13/2013	12/12/2013	12/13/2013
	Air Monitoring Stations Established - 2 days	12/19/2013	12/20/2013	12/19/2013	12/20/2013
	Baseline Air Sampling Completed - 6 days	12/30/2013	1/4/2014	12/30/2013	1/4/2014
	WWPT System Assembled - 5 days	1/13/2014	1/17/2014	1/15/2014	1/17/2014
	Traffic Control Plan Signs Installed - 1 day	1/6/2014	1/6/2014	1/7/2014	1/7/2014
Ameren Office Building Demolition		Projected Dates		Actual Dates	
	Asbestos Abatement - 3 days	11/12/2013	11/15/2013	11/12/2013	11/15/2013
	Contents Disposal - 1 day	12/17/2013	12/17/2013	12/17/2013	12/17/2013
	Structure Demolition - 3 days	1/8/2014	1/10/2014	1/13/2014	1/15/2014
	Debris Disposal - 2 days	1/9/2014	1/10/2014	1/15/2014	1/16/2014
Phase One Excavation		Projected Dates		Actual Dates	
	Phase One Excavation	1/17/2014	2/26/2014	1/17/2014	2/26/2014
	Phase One Backfilling	1/27/2014	3/7/2014	1/30/2014	3/6/2014
Sewer Replacement		Projected Dates		Actual Dates	
	Pre-Cast Fabrication	2/17/2014	3/12/2014	2/17/2014	3/12/2014
	Staking	3/3/2014	3/4/2014	3/7/2014	3/7/2014
	Contractor Mobilization	3/5/2014	3/7/2014	3/10/2014	3/10/2014
	Existing Culvert Demolitions	3/10/2014	3/12/2014	3/12/2014	3/14/2014
	Excavation & Subgrade Prep	3/13/2014	3/19/2014	3/11/2014	3/14/2014
	West Junction Excavation	3/13/2014	3/14/2014	3/12/2014	3/14/2014
	Install Pre-Cast Sections	3/20/2014	4/2/2014	3/20/2014	3/21/2014
Phase Two "A" Excavation		Projected Dates		Actual Dates	
	Phase Two Excavation	3/10/2014	3/21/2014	3/7/2014	4/1/2014
	Phase Two Backfilling	3/24/2014	4/4/2014	4/2/2014	4/8/2014
	Old Culvert Demolition	4/3/2014	4/23/2014	3/10/2014	4/11/2014
Phase Three Excavation		Projected Dates		Actual Dates	
	Temporary Structure Assembled - 15 days	4/29/2014	5/10/2014		
	Ventilation System Assembled - 5 days	5/7/2014	5/10/2014		
	Temporary Structure Permit Received - 1 day	5/8/2014	5/8/2014	4/11/2014	4/11/2014
	Phase Three Excavation	5/15/2014	7/15/2014		
	Phase Three Backfilling	5/27/2014	7/15/2014		
	Structure Disassembled - 10 days	7/17/2014	7/31/2014		
	Ventilation System Removed	7/17/2014	7/18/2014		
	Air Handlers Shipped	7/21/2014	7/22/2014		
	Structure Components Shipped	8/4/2014	8/8/2014		
Phase Two "B" Excavation		Projected Dates		Actual Dates	
	Phase Two Excavation	8/1/2014	8/14/2014		
	Phase Two Backfilling	8/8/2014	8/14/2014		

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		Projected Dates		Actual Dates	
Site Restoration		Start	Complete	Start	Complete
	Final Site Surface Grading	8/15/2014	8/20/2014		
	Final Site Surface Repair	8/21/2014	9/2/2014		
	Site Fence Revisions Completed	9/3/2014	9/5/2014		
Site Demobilization		Start	Complete	Start	Complete
	Excavation Equipment Demobilized - 2 days	9/3/2014	9/4/2014		
	WWPT System Removed - 2 days	8/18/2014	8/19/2014		
	LP Tank Removed - 1 day				
	Traffic Control Signage Removed - 1 day	9/5/2014	9/5/2014		
	Sidewalk Reopened - 1 day	9/5/2014	9/5/2014		
	Utilities Disconnected - 2 days	9/4/2014	9/5/2014		
	Facilities Removed - 2 days	9/4/2014	9/5/2014		
	Pac-Van Office Demobilized - 1 day	9/5/2014	9/5/2014		



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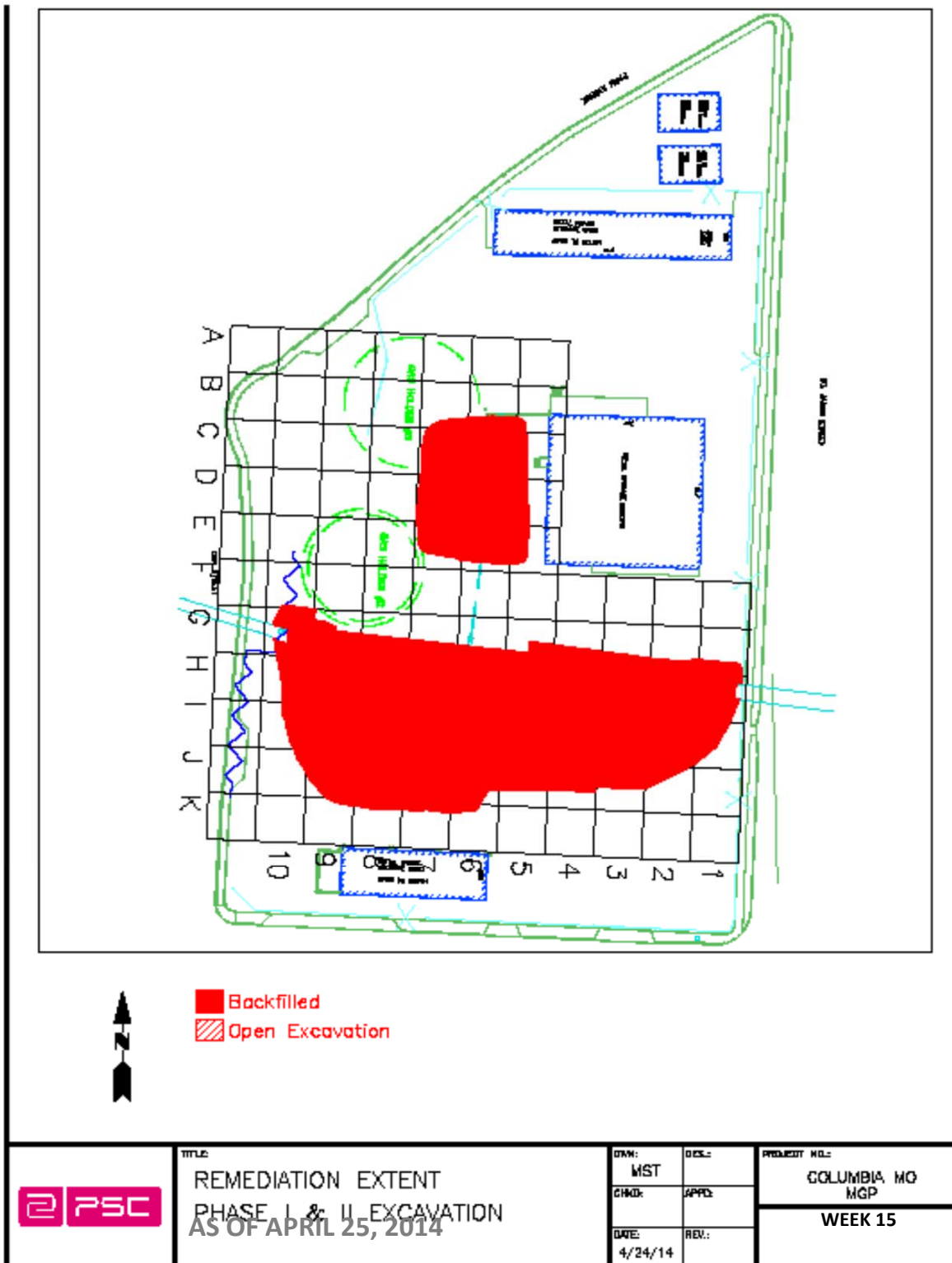
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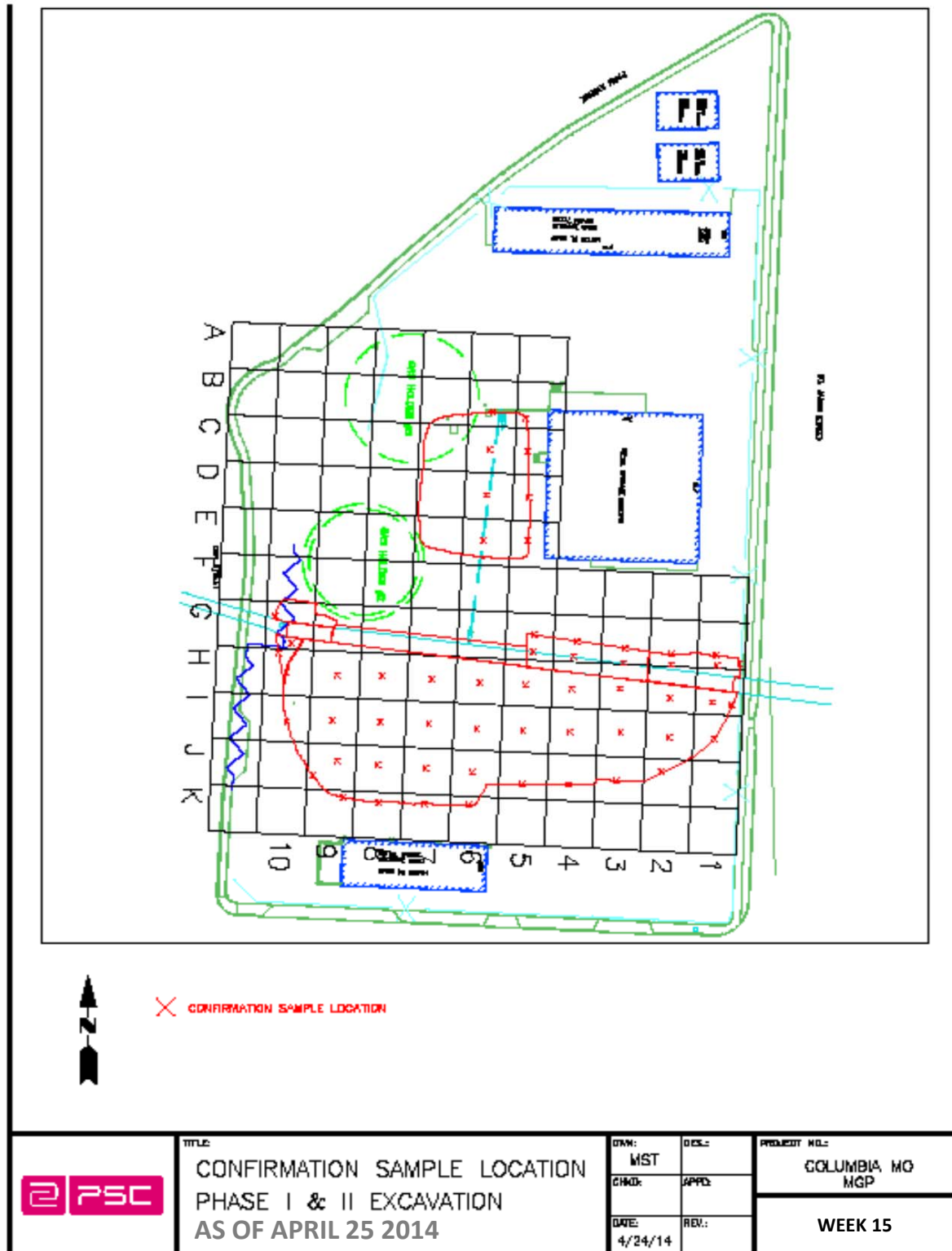
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The west temporary structure footing trench was excavated on April 21. EOI used a laser level to establish the necessary depth of the trench to form a uniform depth for the footing with a level top surface



The ends of the structure footing trenches were blocked with plywood to form clean ends to the footings





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**EOI places five strand of steel rebar in the bottom of the west structure footing. The strands were elevated off of the bottom of the trench with "chairs"**



**A second layer of steel rebar was placed eight inches below the planned and marked top of the footing pour. The eight inch depth of the upper rebar strand will avoid interfering with the structure anchor bolts**





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**The east structure footing preparation for the concrete pour is completed.**



**Preparation of the west structure footing trench is completed and ready for the concrete pour**





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**The west structure footing concrete pour was completed on April 23**



**The completed west structure footing pour.**





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**The east structure footing concrete pour was completed on April 25**



**The completed east structure footing pour**



## WEEK 15 - REAL-TIME AIR MONITORING SUMMARY

### Ameren Services - Columbia FMGP

Downwind Real-Time PM <sub>10</sub> Concentrations				
PM <sub>10</sub> Action Level: 0.15 mg/m <sup>3</sup>				
Week 15	Date	Daily High (mg/m <sup>3</sup> )	Daily Low (mg/m <sup>3</sup> )	Daily Average (mg/m <sup>3</sup> )
	4/21/2014	0.064	0.018	0.035
	4/22/2014	0.022	0.005	0.013
	4/23/2014	0.035	0.016	0.023
	4/24/2014	0.022	0.013	0.017

Open Air Excavation Real-Time Benzene Daily Concentrations						
Benzene Action Level: 0.026 ppm						
Week 15	Date	Upwind		Downwind		Daily Average (ppm)
		Daily High (ppm)	Daily Low (ppm)	Daily High (ppm)	Daily Low (ppm)	
	4/21/2014	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	4/22/2014	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	4/23/2014	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	4/24/2014	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)

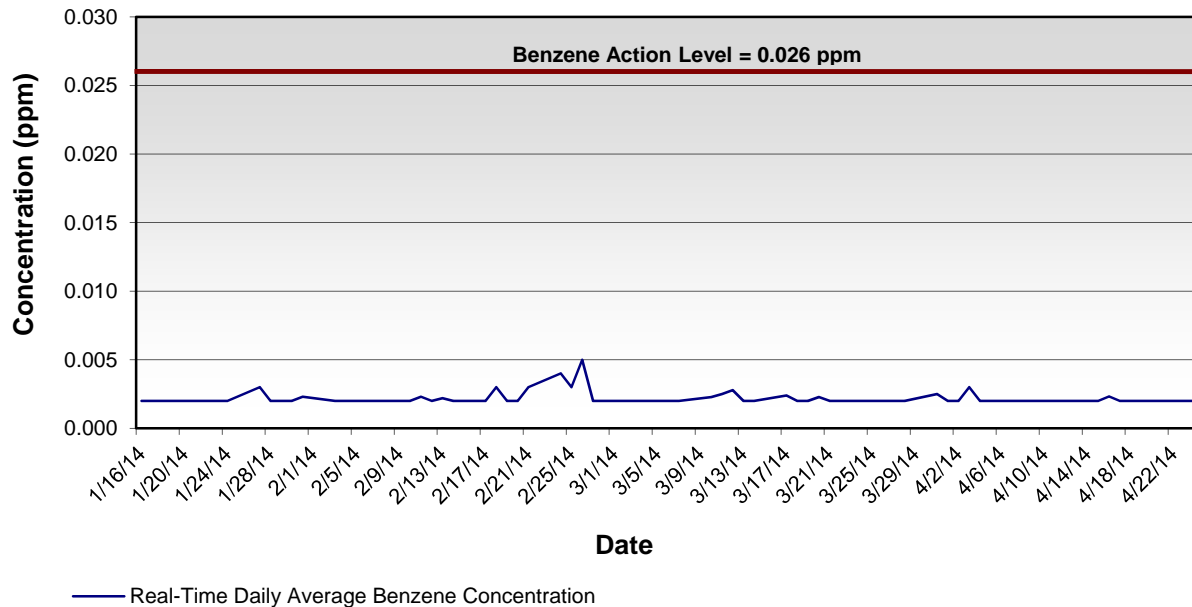
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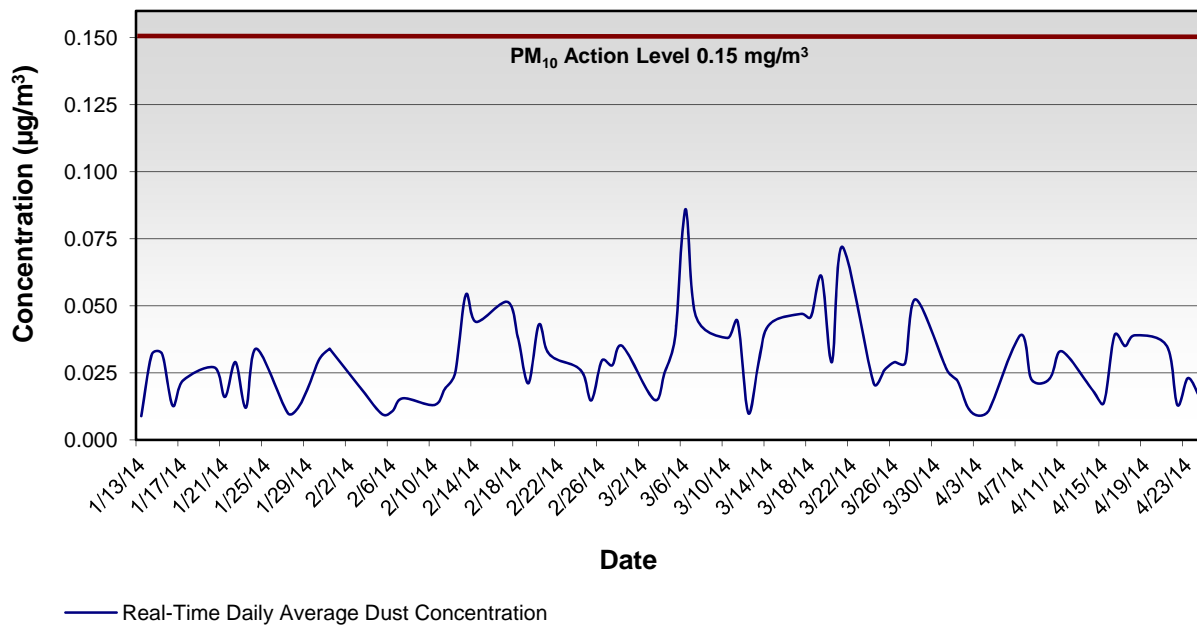
## WEEK 15 - REAL-TIME AIR MONITORING SUMMARY

### Ameren Services - Columbia FMGP

#### REAL-TIME DAILY AVERAGE BENZENE GRAPH



#### REAL-TIME DAILY AVERAGE PM<sub>10</sub> GRAPH

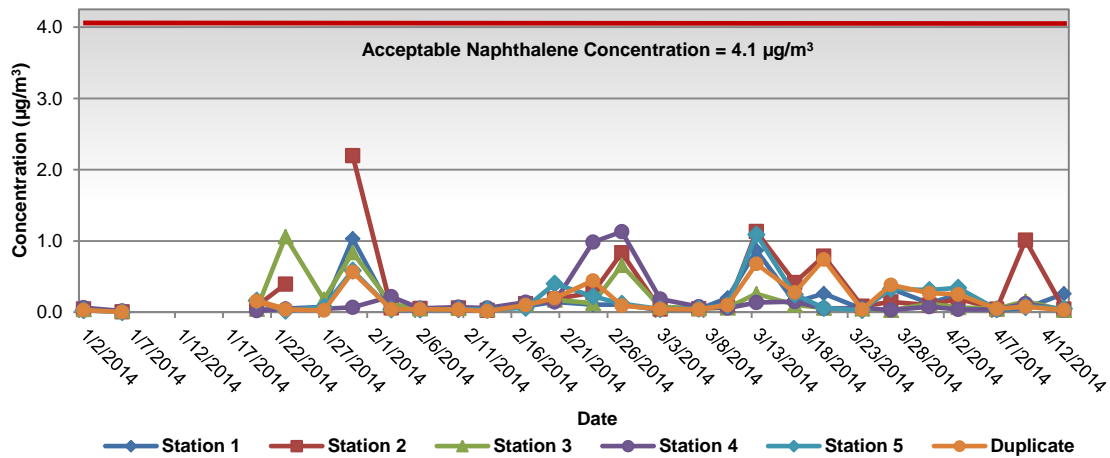


- Note: 1) Each data point represents the real-time daily average benzene or PM<sub>10</sub> concentration obtained during perimeter air monitoring.  
 2) Acceptable Concentrations are as defined in the Ambient Air Monitoring Plan, Former Manufactured Gas Plant, Columbia, Missouri prepared by Burns & McDonnell dated November 2013.

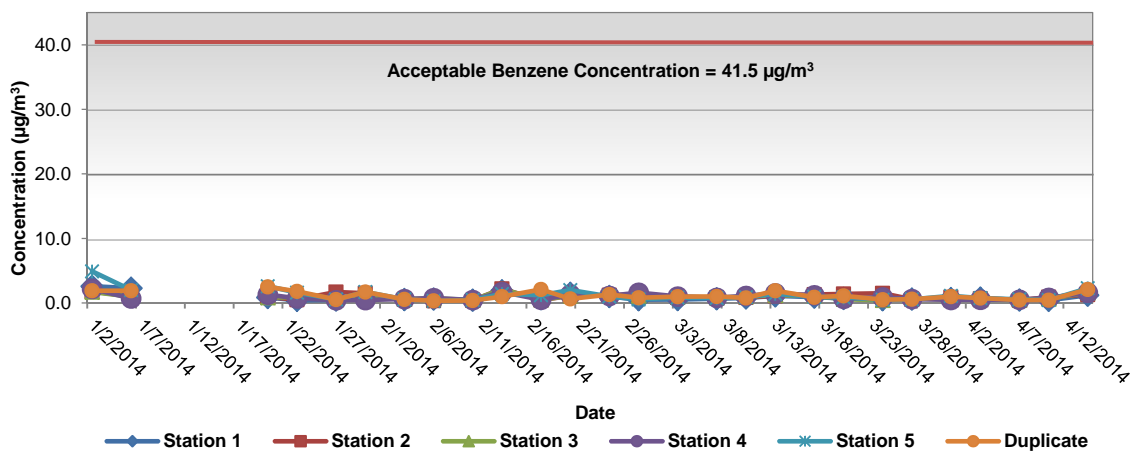


## WEEK 15 - TIME-AVERAGED AIR MONITORING RESULTS Ameren Services - Columbia FMGP

TIME-AVERAGED NAPHTHALENE VS. TIME



TIME-AVERAGED BENZENE VS. TIME



TIME-AVERAGED PM<sub>10</sub> VS. TIME

